

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in this application:

Listing of Claims

Claims 1-34 (canceled)

Claim 35 (new): A method for analyzing a semiconductor wafer exposed multiple times using a mask comprising the steps of:

- dividing the mask into stepper area window (SAW) segments, all SAW segments having same dimensions;

- assigning to each of the SAW segments a unique SAW segment index, defining a set of defined SAW segment indices;

- defining image field segments adjacent to each other within an image field of a camera, the image field segments having the same image dimensions as images of SAW segments on the wafer within the image field of the camera, the area covered by the image field segments within the image field of the camera having different image dimensions than the images of the mask on the wafer within the image field of the camera;

- assigning to each image field segment a unique image segment index;

- capturing images of the wafer with the camera at different positions of the camera and the wafer with respect to each other, image field segments within at least some images representing SAW segments of adjacent images of the mask on the wafer;

- storing the captured images;

- for each stored image, assigning a defined SAW segment index to at least one image field segment within the image according to the positions of the camera and the wafer with respect to each other when the image is captured; and

- comparing contents of image field segments of stored images with each other, wherein each compared field segments of each pair of compared field segments has the same SAW segment index and the same image segment index.

Claim 36 (new): The method of Claim 35, wherein each image field segment of the captured images represents a unique SAW segment on the wafer.

Claim 37 (new): The method of Claim 35, wherein the SAW segments and image field segments are rectangular.

Claim 38 (new): A method for analyzing a semiconductor wafer exposed multiple times using a mask comprising the steps of:

- dividing the mask into stepper area window (SAW) segments, all SAW segments having same dimensions;

- assigning to each of the SAW segments a unique SAW segment index, defining a set of defined SAW segment indices;

- defining image field segments adjacent to each other within an image field of a camera, the image field segments having the same image dimensions as images of SAW segments on the wafer within the image field of the camera, the area covered by the image field segments within the image field of the camera having different image dimensions than the images of the mask on the wafer within the image field of the camera;

- assigning to each image field segment a unique image segment index;
- capturing images of the wafer with the camera at different positions of the camera and the wafer with respect to each other, image field segments within at least some images representing SAW segments of adjacent images of the mask on the wafer;

- storing the captured images;

- for each stored image, assigning a defined SAW segment index to at least one image field segment within the image according to the positions of the camera and the wafer with respect to each other when the image is captured; and

- comparing contents of image field segments of stored images with at least one master image, wherein each compared field segments of each pair of compared field segments has the same SAW segment index and the same image segment index.

Claim 39 (new): The method of Claim 38, wherein each image field segment of the captured images represents a unique SAW segment on the wafer.

Claim 40 (new): The method of Claim 38, wherein the SAW segments and image field segments are rectangular.

Claim 41 (new): An apparatus for analyzing a semiconductor wafer exposed multiple times using a mask comprising:

- a camera;

- a means for changing positions of the camera and the wafer with respect to each other; and

- a processing unit capable of:

- dividing the mask into stepper area window (SAW) segments, all SAW segments having same dimensions;

- assigning to each of the SAW segments a unique SAW segment index, defining a set of defined SAW segment indices;

- defining image field segments adjacent to each other within an image field of the camera, the image field segments having the same image dimensions as images of SAW segments on the wafer within the image field of the camera, the area covered by the image field segments within the image field of the camera having different image dimensions than the images of the mask on the wafer within the image field of the camera;

- assigning to each image field segment a unique image segment index;

- storing images of the wafer captured with the camera at different positions of the camera and the wafer with respect to each other, image field segments within at least some images representing SAW segments of adjacent images of the mask on the wafer;

- for each stored image, assigning a defined SAW segment index to at least one image field segment within the image according to the positions of the camera and the wafer with respect to each other when the image is captured; and

- comparing contents of image field segments of stored images with each other,

wherein each compared field segments of each pair of compared field segments has the same SAW segment index and the same image segment index.

Claim 42 (new): The apparatus of Claim 41, wherein each image field segment of the captured images represents a unique SAW segment on the wafer.

Claim 43 (new): The apparatus of Claim 41, wherein the SAW segments and image field segments are rectangular.

Claim 44 (new): An apparatus for analyzing a semiconductor wafer exposed multiple times using a mask comprising:

- a camera;
- a means for changing positions of the camera and the wafer with respect to each other; and
- a processing unit capable of:
 - dividing the mask into stepper area window (SAW) segments, all SAW segments having same dimensions;
 - assigning to each of the SAW segments a unique SAW segment index, defining a set of defined SAW segment indices;
 - defining image field segments adjacent to each other within an image field of the camera, the image field segments having the same image dimensions as images of SAW segments on the wafer within the image field of the camera, the area covered by the image field segments within the image field of the camera having different image dimensions than the images of the mask on the wafer within the image field of the camera;
 - assigning to each image field segment a unique image segment index;
 - storing images of the wafer captured with the camera at different positions of the camera and the wafer with respect to each other, image field segments within at least some images representing SAW segments of adjacent images of the mask on the wafer;
 - for each stored image, assigning a defined SAW segment index to at least one image field segment within the image according to the positions of the camera and the

wafer with respect to each other when the image is captured; and
comparing contents of image field segments of stored images with at least one master image, wherein each compared field segments of each pair of compared field segments has the same SAW segment index and the same image segment index.

Claim 45 (new): The apparatus of Claim 44, wherein each image field segment of the captured images represents a unique SAW segment on the wafer.

Claim 46 (new): The apparatus of Claim 44, wherein the SAW segments and image field segments are rectangular.